Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A communication device with a transmit path and a receive path configured ~~for coupling~~ to couple to a communication medium ~~and communicating at least two channels~~ to communicate multi-tone ~~of data~~ modulated communication channels ~~with DMT line code using a common set of tones for both a transmit path and a receive path~~, and the communication device comprising:

~~an analog stage for converting on the transmit path digitized DMT symbols in the time domain to analog signals and said analog stage further for converting on the receive path analog signals into the digitized DMT symbols in the time domain; and~~

a Fourier transform engine for transforming transmitted and received communication channels between the time domain and the frequency domain using a common set of tones spanning a shared frequency range for the transmitted and received communication channels;

~~a digital stage for generating a selected one of time domain redundancy and frequency domain redundancy within the DMT line code for both the transmit path and the receive path to obtain symmetrical bandwidth on the transmit path and the receive path.~~

an encoder on the transmit path coupled to a Fourier transform engine and configured to generate data redundancy on the transmit path by replicating data in the transmitted communication channel and encoding the replicated data with a first code sequence; and

a decoder coupled to the Fourier transform engine on the receive path and configured to decode a received communication channel exhibiting data redundancy with a second code sequence orthogonal to the first code sequence.

2. (Currently Amended) The communication device of Claim 1, wherein the ~~digital stage includes a receive path further comprising:~~ the first code sequence for encoding redundant data in the encoder and the second code sequence for decoding redundant data in the decoder further comprise orthogonal Walsh codes.

~~a DFT logic for converting the digitized DMT symbols from the time domain to a frequency domain;~~

~~a multiple access decoder to combine a number RN of the digitized DMT symbols, where R corresponds with an order of redundancy in one of the frequency domain and the time domain and recover N DMT symbols; and~~

~~a tone decoder unit to convert the N DMT symbols to digital information corresponding with a selected one of the at least two channels.~~

3. (Currently Amended) The communication device of Claim ~~2~~ 1, wherein ~~said multiple access decoder~~ the encoder and decoder further comprises respectively :

a Walsh encoder configured to generate data redundancy on the transmit path in the time domain, by duplicating each successive tone set, and the encoder further configured to encode duplicated tone sets utilizing as the first code sequence a first Walsh code; and

a Walsh decoder for decoding ~~the RN digitized DMT symbols using a unique Walsh code associated with the selected one of the at least two channels received.~~ the received communication channel exhibiting a data redundancy in the time domain with the second code sequence corresponding with a second Walsh code orthogonal to the first Walsh code.

4. (Currently Amended) The communication device of Claim 1, wherein the ~~digital stage includes a transmit path~~ further ~~comprising~~ comprises:

~~a tone encoder unit to convert bits of information from a selected one of the at least two channels to N DMT symbols;~~

~~a multiple-access encoder to accept the N DMT symbols, and to generate a number RN of the DMT symbols, where R corresponds with an order of redundancy in one of the frequency domain and the time domain;~~

~~a DFT logic for converting the RN digitized DMT symbols from the multiple-access encoder from the frequency domain to the time domain.~~

a Walsh encoder configured to generate data redundancy on the transmit path in the the frequency domain, by duplicating tones within each tone set, and the encoder further configured to encode the replicated tones within each tone set utilizing as the first code sequence a first Walsh code; and

a Walsh decoder for decoding the received communication channel exhibiting a data redundancy in the frequency domain with the second code sequence corresponding with a second Walsh code orthogonal to the first Walsh code.

5-7. (Canceled)

8. (Original) The communication device of Claim 1, wherein the communication device comprises at least one of a physical modem and a logical modem.

9. (Canceled)

10. (Currently Amended) A method for communicating ~~at least two~~ multi-tone modulated upstream and downstream communication channels ~~of data~~ between ~~at least two modems~~ a first and second modem coupled to one another via a communication medium ~~each with a transmit path and a receive path and each of the at least two modems implementing DMT modulation and demodulation on the transmit path and the receive path respectively~~, and the method for communicating comprising the ~~acts~~ steps of:

~~implementing a common set of sub carriers for communications of the at least two channels of data between the modems and each sub carrier within the common set of sub carriers correlating with a respective tone within a common set of DMT tones;~~

~~generating one of time domain redundancy and frequency domain redundancy among the DMT tones transmitted and received by each of said modems to obtain symmetrical bandwidth for communications between said at least two modems across the common set of sub carriers.~~

- establishing a first and a second code sequence orthogonal to one another for encoding the upstream and downstream communication channels respectively;
- replicating data associated with the upstream communication channel on a transmit path of the first modem and associated with the downstream communication channel on a transmit path of the second modem;
- encoding data replicated in the replicating step with the first code sequence on the transmit path of the first modem and with the second code sequence on the transmit path of the second modem;
- modulating the data encoded in the encoding step using a common set of tones spanning a shared frequency range for both the upstream and downstream communication channels; and
- decoding the data modulated in the modulating step on a receive path of the second modem using the first code sequence and on a receive path of the first modem using the second code sequence.

11. (Currently Amended) The method of Claim 10, wherein the ~~generating act further comprises the acts of:~~

~~accepting a block of data for transmission;~~

~~allocating each of N portions of a block of data for transmission to a corresponding subset of R tones of the common set of RN DMT tones to obtain frequency domain redundancy among the DMT tones transmitted and received by each of the at least two modems.~~

first and second code sequences established in the establishing step comprise orthogonal Walsh codes.

12. (Currently Amended) The method of Claim ~~11~~ 10, wherein the ~~allocating~~ replicating ~~act~~ step further comprises ~~the act of~~:

~~assigning to each of the at least two modems a corresponding unique codeword for the transmission of data;~~

~~encoding with the corresponding unique codeword each of the N portions of the block of data within the corresponding subset of R tones to create mutual orthogonality of the data transmissions between each of the at least two modems.~~

duplicating each successive tone set of the upstream and downstream communication channels on the transmit paths of the first modem and second modem respectively.

13. (Currently Amended) The method of Claim 10, wherein the ~~generating~~ replicating ~~act~~ step further comprises ~~the acts of~~:

~~accepting a block of data for transmission;~~

~~allocating each of N portions of a block of data for transmission to R common sets of N DMT tones to obtain time domain redundancy among the DMT tones transmitted and received by each of the at least two modems.~~

- duplicating tones within each tone set of the upstream and downstream communication channels on the transmit paths of the first modem and second modem respectively.

14. (Canceled)